

COMPARISON OF OBSERVED GEOCENTER VARIATIONS WITH MODEL PREDICTIONS

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The geocenter variations reflect the global scale mass redistribution and the interaction between the solid Earth and the mass load. Determination of the geocenter variations due to surface mass load from various geophysical sources places constraints on the variations of the origin of terrestrial reference frame, and provides the expected range of geocenter variations for space geodesy. We examine the contribution of surface mobile mass load to the geocenter variations. Atmospheric pressure data from ECMWF (1980-1994) series, wind-driven ocean current simulation data from modular ocean model (MOM) (1992-1994) and isopycnal model (ISO) (1992-1994), ocean tide series from self-consistent equilibrium model, and global surface water series (1973-1993) are used to calculate their predicted geocenter variations. Our results suggest that on time scale from 30 days to 10 years the primary variability of geocenter variations from atmosphere, ocean and surface ground water occurs on the annual and semiannual scales. The lumped sum of these surface mass load induced geocenter variations is within 1 cm level. Comparison between our results and recently space-geodesy determined geocenter variations from LAGEOS, TOPEX and GPS data will be presented.

Submittal Information:

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